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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/542,350

04/18/2006

Joel Abadie

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EXAMINER

NGUYEN, TINA MY PHUONG

ART UNIT

PAPER NUMBER

3739

MAIL DATE

DELIVERY MODE

09/14/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/542,350	Applicant(s) ABADIE ET AL.	
	Examiner TINA NGUYEN	Art Unit 3739	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 July 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17-37 is/are pending in the application.
- 4a) Of the above claim(s) 28-35 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17-27, 36 and 37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 July 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I, claims 17-27, in the reply filed on 07/15/09 is acknowledged. New claims 36-37 are acknowledged pursuant to the elected group.
2. Claims 28-35 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Group II and Group III, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 07/15/09.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claims **18-19 and 36** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
5. Claims **18-19** recite that the "actuators are leaves, preferably one-piece leaves" (line 2 of claim 18) and "leaves are one-piece leaves" (line 2 of claim 19). There is a lack of support for this limitation in the specification. The specification and drawings teach that the shape memory alloy section of the actuator is a leaf (2, 3 Fig. 1 in drawings), not that entire actuator is a leaf. It is recommended that the "actuators" in line 2 of claim 18 be changed to --shape memory alloy--.

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6. As to claim **36**, applicant must recite the specific structural limitations of the longitudinal structures apparent in claim 17 in claim 36 instead of reciting “longitudinal structures according to claim 17”.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims **17, 20, 23, 25, 36, and 37** are rejected under 35 U.S.C. 102(b) as being anticipated by Maruyama et al. (JP2000135288).

9. As to claim **17**, “contact” as defined by Encarta is taken to mean “in a state of communication”. Maruyama et al. disclose an orientable longitudinal structure (Fig. 1) comprising: substantially longitudinal actuators made of shape memory alloy (15, 16, 17, 18), n-doped (PU1) and p-doped (PU2) Peltier elements and electric operating means (25); said actuators being arranged in pairs and positioned antagonistically (Fig. 2); and each said actuator being in contact substantially at its ends with an n-doped Peltier element and a p-doped Peltier element (Fig. 1).

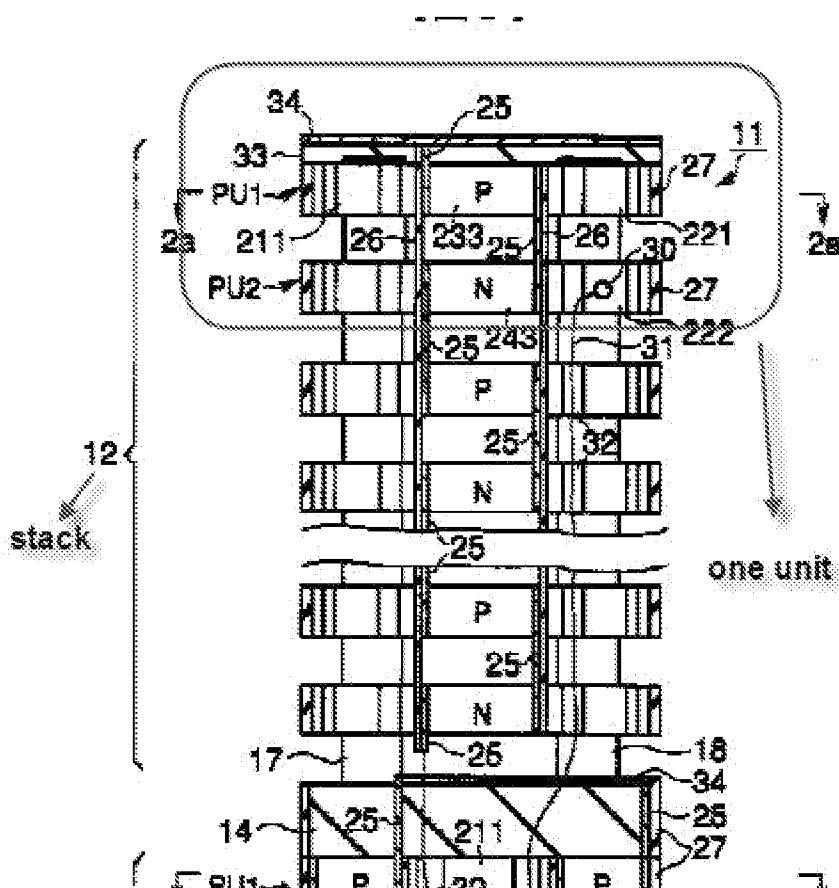
10. As to claim **20**, Maruyama et al. disclose that each n-doped and p-doped Peltier element is in contact with a partially annular conducting element (19, 20, 21, 22, paragraph [0015]).

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11. As to claim **23**, Maruyama et al. disclose that the actuators are positioned diametrically opposite each other with respect to the longitudinal axis of the structure (Fig. 2).

12. As to claim **25**, Maruyama et al. disclose that the actuators are made of NiTi alloy (paragraph [0013]).

13. As to claim **36**, Maruyama et al. disclose a stack of orientable longitudinal structures (Fig. 1, see Figure below for clarification), each one being identical and electrically connected to a previous one. The stack has a possibility of orientation about the longitudinal axis of the stack.



14.

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15. As to claim **37**, Maruyama et al. disclose that a conducting element (26, Fig. 1, paragraph [0020]) of a structure bearing the n-doped elements is adjacent to a conducting element (25, Fig. 1) bearing the p-doped Peltier elements of the previous longitudinal structures

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. Claims **17-22 and 24-27** are rejected under 35 U.S.C. 103(a) as being unpatentable over McCoy (U.S. Patent 4,543,090) in view of Abadie et al. (An integrated shape memory alloy micro-actuator controlled by thermoelectric effect).

18. As to claim **17**, McCoy discloses an orientable longitudinal structure (Fig. 1) comprising: substantially longitudinal actuators (20, Fig. 4) made of shape memory alloy (Col. 2, lines 49-55) which are arranged in pairs and positioned antagonistically (Fig. 4). These actuators, however, do not contain an n-doped Peltier element, p-doped Peltier elements, or an electric operating means. McCoy's actuators are instead heated by a direct connection to wires (40, Fig. 7). These wires supply a current run through the shape memory alloy actuators in order to raise their temperature and affect their shape change.

19. Abadie et al. teach micro-actuators made of a SMA thin blade (1, Figs. 1 & 3), p-doped (2) and n-doped (3) bismuth telluride ingots, and copper electric operating means

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(4). A running of a current through the actuator (Fig. 3) allows the temperature of the "SMA blade [to be] controlled in a reversible manner". Abadie et al. teach that this way, "the phase transition of the SMA blade is controlled and involves control of the deflection theta" (Col. 1, end of page 299, Fig. 1). It would have been obvious to use the actuator as disclosed by Abadie et al. as McCoy's actuators in order to allow for McCoy's endoscope to have the ability to be controlled in a reversible manner, as taught by Abadie et al.

20. As to claims **18-19**, Abadie et al. teach that the shape memory alloy is in the form of a one piece leaf (1, Fig. 1, considered to be a leaf because it is thin).

21. As to claim **20-21**, Abadie et al. teach that each n-doped and p-doped Peltier element is in contact with a partially annular conducting copper element (4, Fig. 1).

22. As to claims **22 and 24**, Abadie et al. is silent as the method of attaching the n-doped and p-doped Peltier elements to the conducting element. However, welding is an art-recognized way of attaching one element to another. Therefore, it would have been obvious to use welding as a substitute for the method of attachment in Abadie et al.'s device and still predictably arrive at the same working actuator.

23. As to claim **25**, McCoy discloses that the actuators are made of nickel titanium alloy (Col. 2, lines 49-55).

24. As to claim **26**, Abadie et al. disclose that the Peltier elements are made of bismuth telluride (Col. 1, paragraph 2, page 298).

25. As to claim **27**, Abadie et al. disclose that epoxy resin cover the thermoelectric junctions between the Peltier elements and the actuators (Col. 1, page 303).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TINA NGUYEN whose telephone number is (571)270-1489. The examiner can normally be reached on M-Thurs 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Linda Dvorak can be reached on 571-272-4764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Linda C Dvorak/
Supervisory Patent Examiner, Art
Unit 3739

/T. N./
Examiner, Art Unit 3739
9/1/2009